

What is claimed is:

1. An ultrasonic probe for obtaining ultrasound information of a region of interest (ROI), the probe comprising:

a housing having a central scan plane;

a transducer array pivotally mounted within the housing, the transducer array being pivotal around a rotation axis; and

a control member pivoting the transducer array about the rotation axis with respect to the central scan plane, the transducer array being configured to transmit and receive ultrasound signals to and from an oblique scan plane oriented at an angle with respect to the central scan plane.

2. The ultrasonic probe of claim 1, wherein the control member comprises a stepper motor disposed in the housing.

3. The ultrasonic probe of claim 2, and comprising a gear and a belt, wherein the belt couples the gear to the stepper motor.

4. The ultrasonic probe of claim 1, wherein the control member comprises a handcrank.

5. The ultrasonic probe of claim 1, further comprising a position sensing device for sensing an angular position of the transducer array with respect to a reference angle.

6. The ultrasonic probe of claim 1, further comprising an optical sensing device for sensing an angular position of the transducer array with respect to a reference angle.
7. The ultrasonic probe of claim 1, further comprising a centering device determining when the transducer array is aligned with the central scan plane.
8. The ultrasonic probe of claim 7, wherein the centering device is a magnetic sensing device.
9. The ultrasonic probe of claim 1, wherein the probe is configured to obtain 3D volumes of scan planes.
10. The ultrasonic probe of claim 1, further comprising a button directing the control member to rotate the transducer array a predetermined number of degrees each time the button is pressed.
11. The ultrasonic probe of claim 1, further comprising a button directing the control member to rotate the transducer array to a predetermined position relative to the central scan plane.
12. The ultrasonic probe of claim 1, wherein the probe is one of a rectal probe, an endovaginal probe, a small part probe producing a sector-shaped scan plane, and a small linear probe producing a rectangular-shaped scan plane.

13. An ultrasonic probe for obtaining ultrasound information of a region of interest (ROI), the probe comprising:

a housing having a central scan plane;

a transducer array pivotally mounted within the housing, the transducer array being pivotal around a rotation axis; and

a motor pivoting the transducer array about the rotation axis with respect to the central scan plane, the transducer array being configured to transmit and receive ultrasound signals to and from an oblique scan plane oriented at an angle with respect to the central scan plane.

14. The ultrasonic probe of claim 13, wherein the probe is one of a rectal probe, an endovaginal probe, a small part probe producing a sector-shaped scan plane, and a small linear probe producing a rectangular-shaped scan plane.

15. The ultrasonic probe of claim 13, wherein the motor is a stepper motor disposed in the housing.

16. The ultrasonic probe of claim 15, and comprising a gear, attached to the transducer array, and a belt, wherein the belt couples the gear to the stepper motor.

17. The ultrasonic probe of claim 13, further comprising a position sensing device for sensing an angular position of the transducer array with respect to a reference angle.

18. The ultrasonic probe of claim 13, further comprising an optical sensing device for sensing an angular position of the transducer array with respect to a reference angle.

19. The ultrasonic probe of claim 13, further comprising a centering device for determining when the transducer array is aligned with the central scan plane.

20. The ultrasonic probe of claim 19, wherein the centering device is magnetic sensor device.

21. A method for obtaining 2D images of a region of interest (ROI), the method comprising the steps of:

providing a housing having a central scan plane;
mounting a transducer array for pivotal motion around a rotation axis; and
pivoting the transducer array around the rotation axis with respect to the central scan plane, the transducer array being configured to transmit and receive ultrasound signals to and from an oblique scan plane oriented at an angle with respect to the central scan plane.

22. The method of claim 21, and comprising the step of providing a stepper motor disposed in the housing.

23. The method of claim 22, and comprising the step of providing a gear and a belt, wherein the belt couples the gear to the stepper motor.

24. The method of claim 21, further comprising the step of providing a handcrank.
25. The method of claim 21, further comprising the step of providing a position sensing device for sensing an angular position of the transducer array with respect to a reference angle.
26. The method of claim 21, further comprising the step of providing an optical sensing device for sensing an angular position of the transducer array with respect to a reference angle.
27. The method of claim 21, further comprising the step of providing a centering device determining when the transducer array is aligned with the central scan plane.
28. The method of claim 27, wherein the centering device is a magnetic sensing device.
29. The method of claim 21, wherein the probe is configured to obtain 3D volumes of scan planes.
30. The method of claim 21, further comprising the step of providing a button for rotating the transducer array a predetermined number of degrees each time the button is pressed.

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2068	USA				